

Amendments to the Claims:

This listing of claims will replace all prior versions, and listings, of claims in the application:

Listing of Claims:

1. (Currently Amended) A method ~~for providing efficient state transfer~~, comprising:
establishing a connection between a first network element and a mobile node ~~and a first network element, wherein the mobile node has an associated reference state that is updated in response to state changes sent by the mobile node;~~
establishing a connection between the first network element and a second network element in response to a handoff request from the mobile node;
~~forwarding messages from the first network element to the mobile node via the second network element;~~
~~sending an acknowledgment message from the first network element to the mobile node, wherein the acknowledgment message includes the updated reference state~~ requesting, by the first network element, header compression state information from the second network element; and
receiving, at the first network element, the requested header compression state information from the second network element ~~establishing a connection between the mobile node and the second network element, in accordance with the updated reference state.~~
2. (Currently Amended) The method of claim 1, ~~wherein the acknowledgment message further comprises a header compression destination option~~ further comprising receiving, at the first network element, a portion of the header compression state information from the mobile node.
3. (Currently Amended) A method ~~for providing efficient state transfer in a mobile network~~, comprising:
sending a router solicitation message from a mobile node to a first ~~[[next]]~~ router;

~~sending~~ receiving a router advertisement message from the ~~[[next]]~~ first router ~~[[to]]~~ at the mobile node in response to the router solicitation message, wherein the router advertisement message includes a header compression capability option;

sending a binding update message from the mobile node to a ~~previous~~ second router, wherein the binding update message includes a routing header pointing to the ~~[[next]]~~ first router and at least one destination option;

~~processing the binding update message in accordance with the routing header and the destination option; and~~

~~sending~~ receiving a binding acknowledgment message from the a ~~previous~~ second router ~~[[to]]~~ at the mobile node, wherein the binding acknowledgment message includes a routing header pointing to the first ~~[[next]]~~ router.

4-6. (Canceled)

7. (Currently Amended) ~~A computer program product comprising a computer usable medium having computer readable code embodied thereon for providing efficient state transfer, the computer program product~~ tangible computer-readable medium having instructions stored thereon, the instructions comprising:

~~computer readable program code devices for establishing a connection between~~ with a mobile node and a first network element, wherein the mobile node has an associated reference state that is updated in response to state changes sent by the mobile node;

~~computer readable program code devices for establishing a connection between the first network element and~~ with a second network element in response to a handoff request from the mobile node;

~~computer readable program code devices for forwarding messages from the first network element to the mobile node via the second network element;~~

~~computer readable program code devices for sending an acknowledgment message from the first network element to the mobile node, wherein the acknowledgment~~

~~message includes the updated reference state~~ requesting header compression state information from the network element; and

~~computer readable program code devices for establishing a connection between the mobile node and the second network element, in accordance with the updated reference state~~ receiving the requested header compression state information from the network element.

8. (Currently Amended) The tangible computer-readable medium ~~computer program product of claim 7, wherein the acknowledgment message further comprises a header compression destination option wherein the instructions further comprise receiving a portion of the header compression state information from the mobile node.~~

9. (Currently Amended) A ~~computer program product comprising a computer usable medium having computer readable code embodied thereon for providing efficient state transfer, the computer program product~~ tangible computer-readable medium having instructions stored thereon, the instructions comprising:

~~computer readable program code devices for sending a router solicitation message from a mobile node to a~~ first ~~[[next]]~~ router;

~~computer readable program code devices for sending~~ receiving a router advertisement message from the first ~~[[next]]~~ router ~~to the mobile node~~ in response to the router solicitation message, wherein the router advertisement message includes a header compression capability option;

~~computer readable program code devices for sending a binding update message from the mobile node to a~~ previous second router, wherein the binding update message includes a routing header pointing to the first ~~[[next]]~~ router and at least one destination option;

~~computer readable program code devices for processing the binding update message in accordance with the routing header and the destination option; and~~

~~computer readable program code devices for sending~~ receiving a binding acknowledgment message from the previous second router ~~to the mobile node~~, wherein the binding acknowledgment message includes a routing header pointing to the first ~~[[next]]~~ router.

10. (New) The method of claim 1, wherein the handoff request is a handoff request from the first network element to the second network element.

11. (New) The method of claim 1, further comprising forwarding, by the first network element, a message from the second network element to the mobile node, wherein the message indicates a most recently acknowledged header compression state sent from the second network element to the first network element.

12. (New) The method of claim 1, further comprising receiving messages from the mobile node, wherein the messages are compressed according to the received header compression state information.

13. (New) The method of claim 3, wherein the router advertisement message indicates a header compression capability.

14. (New) The method of claim 3, wherein the at least one destination option comprises a header compression destination option.

15. (New) A method comprising:
initiating, by a mobile node, a handoff procedure to a first network element from a second network element;
establishing a connection between the mobile node and the first network element;
and
sending at least a portion of header compression state information from the mobile node to the first network element as part of the handoff procedure.

16. (New) The method of claim 15, further comprising receiving, at the mobile node, a most recently acknowledged header compression state from the second network element.

17. (New) The method of claim 16, wherein the header compression state information compress the most recently acknowledged header compression state received by the from the second network element.

18. (New) The method of claim 15, further comprising, after said sending at least a portion of header compression state information, sending compressed packets from the mobile node to the first network element according to the header compression state information.

19. (New) The method of claim 18, wherein the compressed packets comprise partial or compressed headers.

20. (New) A tangible computer-readable medium having instructions stored thereon, the instructions comprising:

initiating, by a mobile node, a handoff procedure to a first network element from a second network element;

establishing a connection between the mobile node and the first network element;
and

sending at least a portion of header compression state information from the mobile node to the first network element as part of the handoff procedure.

21. (New) A method comprising:
receiving a router solicitation message from a mobile node at a first network element;

sending a router advertisement message from the first network element to the mobile node in response to the router solicitation message, wherein the router advertisement message includes a header compression capability option;

receiving a binding acknowledgment message at the first network element from the a second network element, wherein the binding acknowledgment message includes header compression state information utilized by the second network element.

22. (New) The method of claim 21, wherein the router advertisement message indicates a header compression capability.

23. (New) The method of claim 22, wherein the at least one destination option comprises a header compression destination option.

24. (New) The method of claim 21, wherein the header compression state information includes a most recently acknowledged header state from the second network element.

25. (New) The method of claim 24, wherein the most recently acknowledged header state includes both up-link and down-link states.

26 (New) The method of claim 21, further comprising forwarding the binding acknowledgement message from the first network element to the mobile node.

27. (New) A tangible computer-readable medium having instructions stored thereon, the instructions comprising:

receiving a router solicitation message from a mobile node;

sending a router advertisement message to the mobile node in response to the router solicitation message, wherein the router advertisement message includes a header compression capability option;

receiving a binding acknowledgment message from a network element, wherein the binding acknowledgment message includes header compression state information utilized by the network element.